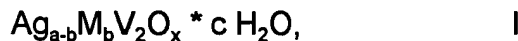


CLEAN COPY OF CLAIMS OZ 49521

1. A multimetal oxide of the formula I



where M is a metal selected from the group consisting of Li, Na, K, Rb, Cs, Tl, Mg, Ca, Sr, Ba, Cu, Zn, Cd, Pb, Cr, Au, Al, Fe, Co, Ni and/or Mo,

a is from 0.3 to 1.9 and

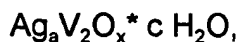
b is from 0 to 0.5, with the proviso that the difference (a-b) .0.1 and

c is from 0 to 20 and

x is a number determined by the valence and amount of elements different from oxygen in the formula I,

which has a crystal structure giving an X-ray powder diffraction pattern which displays reflections at the lattice spacings d of 15.23 ± 0.6 , 12.16 ± 0.4 , 10.68 ± 0.3 , 3.41 ± 0.04 , 3.09 ± 0.04 , 3.02 ± 0.04 , 2.36 ± 0.04 and 1.80 ± 0.04 Å.

2. A multimetal oxide as claimed in claim 1 which has a fibrous crystal morphology having a mean ratio of fiber diameter to fiber length of less than 0.6.
3. A multimetal oxide as claimed in claim 1 which has a specific surface area determined by the BET method of from 3 to 250 m²/g.
4. A multimetal oxide as claimed in claim 1 in which a is from 0.5 to 1.0, b is from 0 to 0.3 and c is from 0 to 5.
5. A multimetal oxide as claimed in claim 1 in which a is from 0.6 to 0.9, b is from 0 to 0.1 and c is from 0 to 1.
6. A multimetal oxide as claimed in claim 1 and having the formula



where a is from 0.6 to 0.9, x is as defined in claim 1 and c is from 0 to 5.

CLEAN COPY OF CLAIMS 0Z 49521

7. A multimetal oxide as claimed in claim 1 whose X-ray powder diffraction pattern displays the following 17 reflections at the specified lattice spacings d [Å]:

Reflections	d [Å]
1	15.23 \pm 0.6
2	12.16 \pm 0.4
3	10.68 \pm 0.3
4	5.06 \pm 0.06
5	4.37 \pm 0.04
6	3.86 \pm 0.04
7	3.41 \pm 0.04
8	3.09 \pm 0.04
9	3.02 \pm 0.04
10	2.58 \pm 0.04
11	2.48 \pm 0.04
12	2.42 \pm 0.04
13	2.36 \pm 0.04
14	2.04 \pm 0.04
15	1.93 \pm 0.04
16	1.80 \pm 0.04
17	1.55 \pm 0.04

8. A multimetal oxide as claimed in claim 7 whose reflections 1 to 17 have the following approximate relative intensities (I_{rel} [%]):

Reflections	I_{rel} [%]
1	16
2	11
3	18
4	11
5	23
6	16
7	80
8	61
9	100
10	23
11	24
12	23
13	38
14	26
15	31
16	43
17	36

CLEAN COPY OF CLAIMS OZ 49521

9. A process for preparing multimetal oxides as claimed in claim 1, which comprises heating vanadium pentoxide suspended in a liquid with a solution of a silver salt, with or without addition of a salt of the metal M, and isolating the product.
10. A process as claimed in claim 9, wherein the liquid used is water.
11. A process as claimed in claim 9, wherein the multimetal oxide is isolated by spray drying or filtering off and drying.
12. The use of multimetal oxides as claimed in claim 1 for producing precatalysts and catalysts for the gas-phase partial oxidation of aromatic hydrocarbons.
13. A precatalyst for producing coated catalysts for the gas-phase partial oxidation of aromatic hydrocarbons by means of a gas comprising molecular oxygen, comprising an inert, nonporous support material and one or more layers applied thereto in the form of a shell or shells, wherein this/these shell-like layer or layers comprises/comprise a multimetal oxide as claimed in claim 1.
14. A precatalyst as claimed in claim 13 which comprises from 30 to 100% by weight of the multimetal oxide, based on the total weight of the layer or layers applied in the form of a shell or shells.
15. A precatalyst as claimed in claim 13 whose inert, nonporous support material comprises steatite.
16. A precatalyst as claimed in claim 13 whose shell-like layer comprises from 30 to 100% by weight, based on the total weight of this layer, of the multimetal oxide and wherein the multimetal oxide has a fibrous crystal morphology having a mean ratio of fiber diameter to fiber length of less than 0.6..
17. A precatalyst as claimed in claim 13 whose shell-like layer comprises from 30 to 100% by weight of the multimetal oxide and wherein the multimetal oxide has a specific surface area determined by the BET method of from 3 to 250 m²/g.
18. A precatalyst as claimed in claim 13, whose shell-like layer comprises from 30 to 100% by weight, based on the total weight of this layer, of the multimetal oxide and wherein the multimetal oxide has the formula

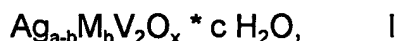
CLEAN COPY OF CLAIMS 02 49521



where a is from 0.6 to 0.9 and c is from 0 to 5.

19. A coated catalyst for the gas-phase partial oxidation of aromatic hydrocarbons by means of a gas comprising molecular oxygen, comprising a catalyst support comprising an inert, nonporous support material and, applied thereto, one or more layer or layers comprising a catalytically active composition which comprises, based on its total weight, from 30 to 100% by weight of one or more silver-vanadium oxide bronzes having an Ag : V atomic ratio of from 0.15 to 0.95 and has a BET surface area of from 2 to 100 m²/g.

20. A coated catalyst as claimed in claim 19 which has been produced using a multimetal oxide of the formula I



where M is a metal selected from the group consisting of Li, Na, K, Rb, Cs, Tl, Mg, Ca, Sr, Ba, Cu, Zn, Cd, Pb, Cr, Au, Al, Fe, Co, Ni and/or Mo,

a is from 0.3 to 1.9 and

b is from 0 to 0.5, with the proviso that the difference (a-b) .0.1 and

c is from 0 to 20 and

x is a number determined by the valence and amount of elements different from oxygen in the formula I,

which has a crystal structure giving an X-ray powder diffraction pattern which displays reflections at the lattice spacings d of 15.23 + 0.6, 12.16 + 0.4, 10.68 + 0.3, 3.41 + 0.04, 3.09 + 0.04, 3.02 + 0.04, 2.36 + 0.04 and 1.80 + 0.04 Å.

21. A coated catalyst as claimed in claim 19 which has been produced from a precatalyst comprising an inert, nonporous support material and one or more layers applied thereto in the form of a shell or shells, wherein this/these shell-like layer or layers comprises/comprise a multimetal oxide of the formula I



where M is a metal selected from the group consisting of Li, Na, K, Rb, Cs, Tl, Mg, Ca, Sr, Ba, Cu, Zn, Cd, Pb, Cr, Au, Al, Fe, Co, Ni and/or Mo,

CLEAN COPY OF CLAIMS 02 49521

- a is from 0.3 to 1.9 and
- b is from 0 to 0.5, with the proviso that the difference (a-b) ≥ 0.1 and
- c is from 0 to 20 and
- x is a number determined by the valence and amount of elements different from oxygen in the formula I,

which has a crystal structure giving an X-ray powder diffraction pattern which displays reflections at the lattice spacings d of 15.23 ± 0.6 , 12.16 ± 0.4 , 10.68 ± 0.3 , 3.41 ± 0.04 , 3.09 ± 0.04 , 3.02 ± 0.04 , 2.36 ± 0.04 and 1.80 ± 0.04 Å.

22. A process for preparing carboxylic acids and/or carboxylic anhydrides by partial oxidation of aromatic hydrocarbons in the gas phase by means of a gas comprising molecular oxygen at elevated temperature over a catalyst whose catalytically active composition is applied in the form of a shell to a catalyst support comprising an inert, nonporous support material, wherein the catalyst used is a coated catalyst whose catalytically active composition, based on its total weight, comprises from 30 to 100% by weight of one or more silver-vanadium oxide bronzes having an Ag:V atomic ratio of from 0.15 to 0.95 and has a BET surface area of from 2 to 100 m²/g, in the presence or absence of at least one coated catalyst for the oxidation of aromatic hydrocarbons to carboxylic acids and/or carboxylic anhydrides which is different from the above-described coated catalyst and whose catalytically active composition comprises vanadium pentoxide and anatase as significant catalytically active constituents and, if such a second coated catalyst is present, it is used in a combined catalyst bed with the coated catalyst of the above composition in the oxidation reactor.
23. A process as claimed in claim 22, wherein use is made of a coated catalyst whose catalytically active composition, based on its total weight, comprises from 30 to 100% by weight of a silver-vanadium oxide bronze having an Ag:V atomic ratio of from 0.15 to 0.95 and has a BET surface area of from 2 to 100 m²/g and which has been produced in situ in the oxidation reactor from a precatalyst as claimed in claim 13.

CLEAN COPY OF CLAIMS OZ 49521

24. A process as claimed in claim 22, wherein the coated catalyst used in a first catalyst bed located toward the gas inlet end of the oxidation reactor is a coated catalyst whose catalytically active composition comprises, based on its total weight, from 30 to 100% by weight of a silver-vanadium oxide bronze having an Ag:V atomic ratio of from 0.15 to 0.95 and has a BET surface area of from 2 to 100 m²/g and the coated catalyst used in a subsequent catalyst bed located toward the gas outlet end of the oxidation reactor is a coated catalyst for the oxidation of aromatic hydrocarbons to carboxylic acids and/or carboxylic anhydrides whose catalytically active composition comprises vanadium pentoxide and anatase as significant constituents.
25. A process as claimed in claim 22, wherein, as aromatic hydrocarbons, o-xylene or naphthalene or mixtures of o-xylene and naphthalene are oxidized to phthalic anhydride.
26. A process as claimed in claim 22, wherein, as aromatic hydrocarbon, toluene is oxidized to benzoic acid.